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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/615,705 07/13/00 HORIGUCHI

Y Q60098

EXAMINER

MMC1/0403

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NADAV, D

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

04/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/615,705

Applicant(s)

Horiguchi

Examiner

ORI NADAV

Group Art Unit

2811



☒ Responsive to communication(s) filed on Mar 21, 2001

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-19 is/are pending in the application.

Of the above, claim(s) 2, 4-7, 9, 11, and 14-19 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 3, 8, 10, 12, and 13 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☒ The drawing(s) filed on Jul 13, 2000 is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Applicant's election of claims 1, 3, 8, 10, 12, 13, 16 and 19 in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 16 and 19 are withdrawn from consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected embodiments.

Drawings

3. Figures 15-17 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly

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connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claimed limitation of a drain of a MOSFET being connected to a power source wire and the source and drain of which being connected to the ground potential wire, as recited in claims 12 and 13, is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. — The following is a quotation of the ~~second~~ paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3, 8, 10, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3, 8, 10, 12 and 13 depend on non-elected claims, thus rendering them indefinite.

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Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 8, 10, 12 and 13, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (4,456,939) in view of Miller (5,255,146).

Ozaki et al. teach in figure 2 a semiconductor device comprising a MOS capacitor 106 connected between a power source wire 107 and a ground potential wire, a power source terminal 103 to which voltage is applied, a ground terminal to which the ground potential wire is connected, and an ESD being a MOSFET connected in parallel with the capacitor, the drain of which is connected to the power source wire and the source and gate of which are connected to the ground potential wire.

Although Ozaki et al. do not state a MOS capacitor, MIS capacitor 106 includes a MOS capacitor, because it is conventional to form a gate dielectric comprising oxide, of which judicial notice may be taken.

Ozaki et al. do not teach a wire resistance of the ground potential between the ESD element connection point and the ground terminal being larger than that between the ESD element connection point and the MOS capacitor's connection point.

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A wire resistance is directly proportional to the length of the wire. Therefore, Ozaki et al. do not teach the layout design of the device, wherein the ground terminal being further away from the ESD element connection point than the distance between the element connection point and the MOS capacitor's connection point. In other words, Ozaki et al. do not teach the ESD protection circuit being located further from the ground pad.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a layout wherein the ground terminal being further away from the ESD element connection point than the distance between the element connection point and the MOS capacitor's connection point in Ozaki et al.'s device, since it is a matter of design choice within the skills of an artisan, subject to routine experimentation and optimization. Note that computer-aided design of integrated circuits is conventionally used nowadays to design semiconductor layouts, of which judicial notice may be taken.

In the alternative, Miller teaches in figure 2 ESD protection circuits 14 being located further from the ground pad 12a, such that the wire resistance of the ground potential between the ESD circuit connection point and the ground terminal is larger than that between the ESD elements within the ESD circuit to the ground connection point.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the circuit layout of Miller in Ozaki et al.'s device, since it is

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conventional to connect the ESD protection circuit to a spaced apart ground pad, of which judicial notice may be taken.

Regarding claim 3, Ozaki et al. teach no other diffusion layer except the ESD element is connected on the ground potential wire between the ground terminal and the connection point on the ground potential wire with one end of the MOS capacitor.

Regarding claim 10, although Ozaki et al. do not explicitly disclose the ESD element clamps a voltage applied to both terminals at a clamp voltage which is lower than the dielectric breakdown voltage of the MOS capacitor, this feature is inherent in Ozaki et al.'s device, because Ozaki et al.'s structure is identical to the claimed structure.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References C-E and N-P are cited as being related to voltage clamped ESD devices.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such

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papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(703) 308-8138**. The Examiner is in the Office generally between the hours of 7 AM to 3 PM (Eastern Standard Time) Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas, can be reached at **(703) 308-2772**.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-**

0956

Ori Nadav, Ph.D.

March 28, 2001

William Mintel

William Mintel
Primary Examiner
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